Edison Non-Acid Storage Batteries *for* Town Lighting Plants

BULLETIN 201

Edison Storage Battery Company

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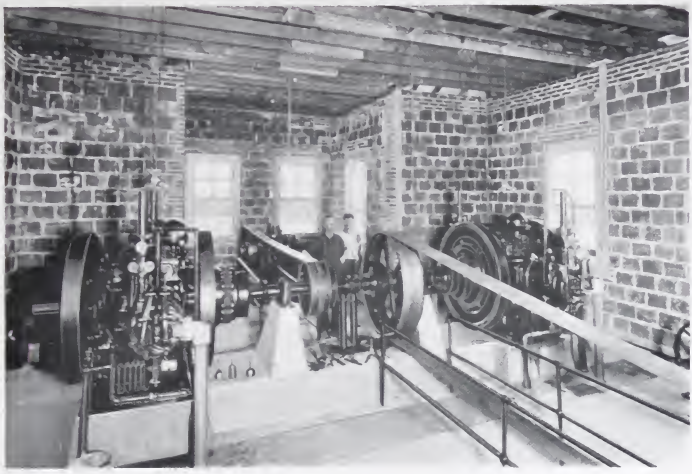


In the Alton, Kansas, Municipal Plant. The Bickel Company, Kansas City, Mo., Construction Engineers

Prosperity through Electricity

There are today a very large number of small towns and villages in this country which are relatively unattractive and not as prosperous as they should be, due to the lack of suitable lighting facilities.

It is universally agreed by engineers and others that lighting by electricity is far superior to all other forms of illumination.

Electric lights increase the attractiveness of the streets, stores and other buildings and make out-of-town people desire to come to town oftener and stay longer. Electric lights will do more to increase the prosperity of the small town than any other improvement.

When Thomas A. Edison invented the incandescent lamp in 1879 and the Edison Non-Acid Storage Battery some years later, he placed the small towns on a par with our largest cities, which themselves could not now exist without the facilities afforded by electricity.

The Economy of the Edison Non-Acid Storage Battery for Twenty-Four Hour Service

There are two methods usually employed for town electric lighting. One is by what is known as alternating current (A. C.) and the other by direct current (D. C.). The main difference between A. C. and D. C. is in the method by which each is made, or generated by electric machinery. It is sufficient to say, however, that each is electric current and both accomplish the same purpose equally. The quality of light furnished by each is identical.

With the A. C. system no storage batteries are employed. In order to get 24 hour service, engines and dynamos must be run constantly for the generation of current (electricity). This necessitates at least two engineers and sometimes three, one being on duty at all times. Aside from this the constant operation of machinery means considerable maintenance cost and reduces the life of the equipment. If the night operator is dispensed with, the service cannot be continuous, consequently the plant is doing only part of its work.

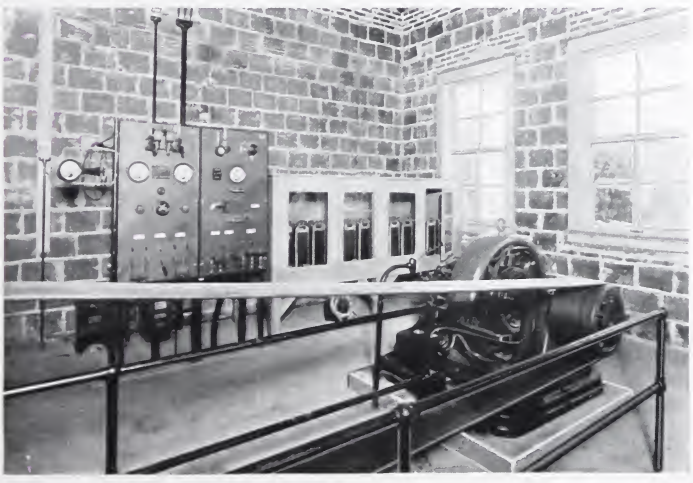
Another point in connection with an A. C. plant, not usually considered, is its working efficiency as a unit. Consider a time when only very little current is required. To supply this a comparatively large engine, usually between 30 and 50 H. P., must be run to do 2 or 3 H. P. duty. As is generally known by users of engines, of no matter what type of fuel consumption, when operating at small loads the equipment is very inefficient and the fuel consumption high.

Of course a small unit could be maintained in addition to the large or main unit, to supply small demands, but this means a higher initial cost in apparatus and more machinery to look after and depreciate.

The main advantage of the A. C. plant is found in towns of from 1,000 inhabitants and upward, where the houses are very much scattered and long transmission lines for carrying the current are necessary. In this case there can be effected a saving in copper, due to the use of transformers which are capable of increasing the A. C. voltage only, permitting the use of relatively small wires for the higher voltage. Of course, with this system where high voltage is used for transmission, transformers must again be resorted to to step down, or reduce, the voltage where the electricity is required for the operation with standard apparatus, such as lamps and other small power appliances.

It will be seen from the foregoing that only very competent engineers or electricians can be employed to maintain an A. C. plant, and this class of help is usually expensive.

Showing the method of installing the Edison Storage Battery No separate room is required as in the case of all other batteries



Now let us consider the D. C. plant. With the Edison Storage Battery equipped D. C. lighting plant the most flexible service is obtained, requiring only a minimum of attention and operating cost. The usual cycle of operation is as follows: early in the evening the engine and dynamo are started up to supply such current as is required by the town and as this is usually very small for the first hour or two the Edison Storage Battery may be charged at a high rate during this period. As the demand for current in the town increases the current used in charging the battery is decreased, so that the dynamo will not be loaded beyond its capacity. When the demand for current is at a maximum, which will usually occur between 6 and 8 o'clock in the evening, the current is then supplied entirely by the dynamo, the battery being disconnected and remaining idle until about 8:30 or 9 P.M., when it is again put on charge, the engine and dynamo still continuing to supply whatever current is required by the town.

After 9 o'clock very little current is in demand, so that the Edison Storage Battery may again be charged at a high rate until, say 10 or 11 o'clock, when the complete plant is shut down and the engine and dynamo stopped. The storage battery is then used for supplying the current during the rest of the night and the next day, until late the following afternoon, when the plant is started up and the above cycle repeated.

There are some towns in which the demand for current will be relatively small. In these cases the battery will not be completely discharged each day and recharging may not be necessary for two or three days. It will be seen how extremely economical an Edison Storage Battery equipped plant will operate in such cases.

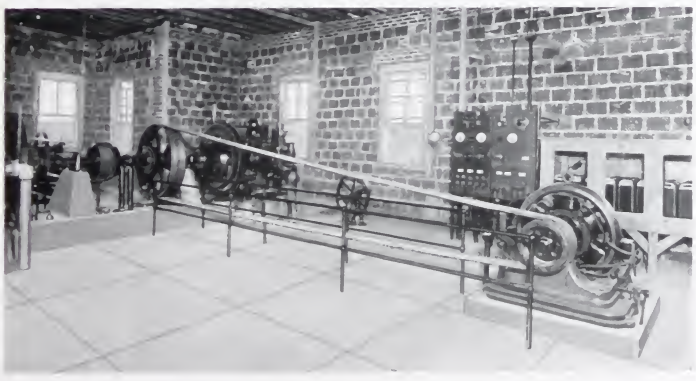
During the period that the plant is shut down and the storage battery is supplying the current, there need be no one in attendance, as the plant in this condition is self-operating.

By this method the battery is charged at the least possible expense, because the type of engine usually employed operates at the best economy at full load. If we can increase the load on the engine to its full capacity, power required for charging the battery is costing very little.

Due to its extremely rugged construction, its ability to stand considerable electrical abuse and not demanding the attention of an experienced operator, the Edison Battery equipped Town Lighting Plant is the most desirable equipment and can be operated by anyone who knows enough to start and stop the engine. Contrast this with the class of labor required for the operation of an A. C. plant. Also bear in mind that for 24 hour service, a plant not equipped with a storage battery requires constant attendance, whereas with the storage battery equipped plant the only services that have to be paid for are during a few hours each day, late in the afternoon or early evening.

It may appear as though a storage battery equipped plant would cost more than an A. C. plant, by the cost of the storage battery alone, but this is not the case. Taking into consideration the best class of apparatus of both A. C. and D. C. type the cost of each plant will approximate the same.

Note the short distance separating the Edison Storage Battery from the dynamo and engine. An Edison Battery uses no acid and gives off no corrosive fumes.



Chief Advantages of the Edison Non-Acid Storage Battery for Electric Lighting

The storage battery is the chief factor of the individual lighting plant, as it furnishes electricity when most needed—at night when the engine and dynamo will not or cannot be run. It is clear, then, that the storage battery requiring the least attention and giving the best service is the most desirable.

The superior features of the Edison Non-Acid Storage Battery over all other types of batteries cause it to be generally demanded for individual House Lighting Plants as well as Town Lighting Systems. In selecting a storage battery for Town Lighting care should be taken to see that the battery selected will be so simple that absolute satisfaction is assured, with a minimum of care and attention. Therefore, it is highly important that the storage battery be carefully considered from all angles before finally making a selection. The Edison Non-Acid Storage Battery offers the following advantages:

Expert attention is not required.

No internal cleaning of the cells is necessary.

It is not necessary to mount cells in sand trays.

No acid is used, the electrolyte being alkaline.

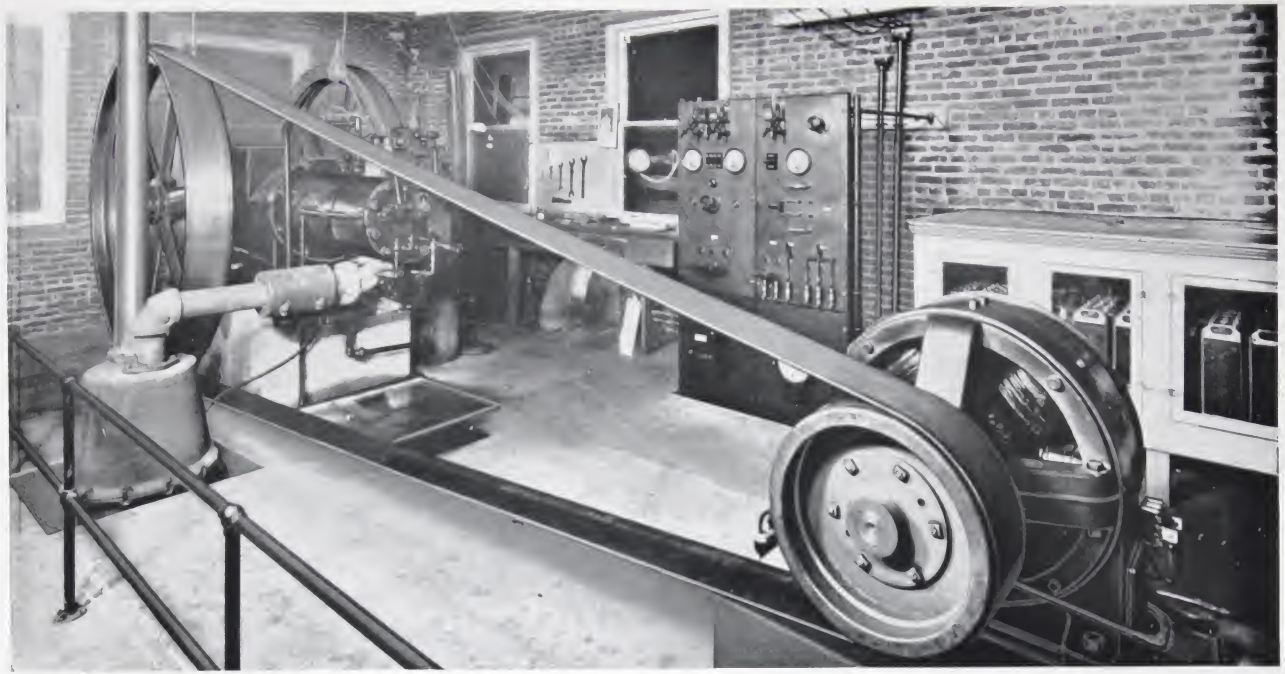
Complete discharge does not injure the Edison Battery.

No end cells are used in the Edison system.

Instead of glass or rubber jars, the Edison cell containers are nickel-plated steel.

The plates cannot become short-circuited by "buckling" or "growing".

Irregular charging periods are of no consequence, thus permitting charging to be done at the convenience of the operator.



Municipal Electric Light Plant at Drexel, Mo. Equipped with Edison Non-Acid Storage Battery.

Current flow may be accidentally reversed, without injury to the cells.

No expensive racks for the cells, as the Edison cells are all assembled and mounted in trays when shipped from our factory to you.

There are no corrosive fumes. The battery can be placed in the same room with your machinery without causing corrosion.

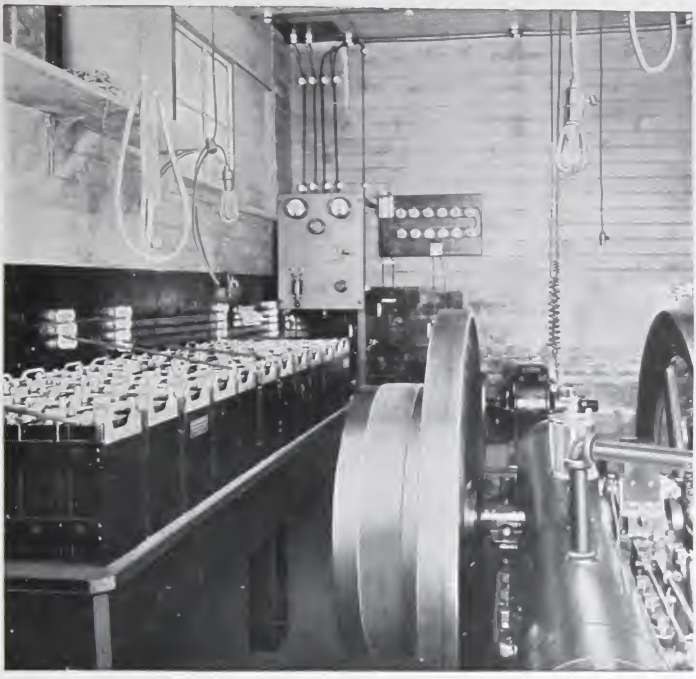
Chemical disintegration is unknown with the Edison Battery, as the electrolyte is a preservative of the active materials and plates.

It occupies smaller space than other batteries and the weight is also very much less. It is thus very easy to handle the Edison Battery and place it in the most convenient position.

The continual use of a hydrometer is not necessary. The density of the electrolyte does not change in the Edison Battery during charge and discharge. It acts merely as a conductor of electricity and does not attack the plates.

The normal rate of charge can be given at all times. Other batteries must be charged at a low rate for a considerable period after the first normal rate run, and your engine must thus be operated under light load, with consequent loss of efficiency.

It is not necessary to completely discharge the Battery before commencing another charge. You can start your engine whenever it is convenient and recharge the battery. Everything about the Edison Electric Lighting System lends itself to your comfort—you do not have to accommodate yourself to any shortcomings. The Edison Battery is shipped completely assembled in trays, the number of cells per tray being determined by the particular condition. The usual assembly for a 110 volt Town Lighting Plant consists of 94 cells supplied in 12 trays, but any other arrangement will be furnished to specifications, without extra charge.



A Compact 110-volt Edison Plant.

Edison Installations

One of the most important points to be considered in the installation of a storage battery plant, is the effect of fumes on surrounding machinery.

Special battery rooms such as all other storage batteries require, are expensive and take valuable space.

The solution in the Edison Storage Battery is alkaline. No offensive odors are given off, or any gases which will injure surroundings, or nearby apparatus.

The Edison Non-Acid Storage Battery does away with special battery rooms. Any convenient location is suitable. The value of this exclusive Edison advantage will be self-evident to engineers and others familiar with storage batteries.

Form 201 9 16 Second Edition

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